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NATIONAL LEAD COMPANY OF OHIO

A SUBSIDIARY OF NL INDUSTRIES, INC.

CINCINNATI, OHIO 45239

October 12, 1979

SUBJECT REPORT OF TRIPS TO YOUNGSVILLE, NORTH CAROLINA, AUGUST, 1979
TO R. C. Heatherton
FROM K. N. Ross and C. J. Mize
REFERENCE

PURPOSE OF TRIPS:

The primary purpose of these trips was to provide health physics coverage for the transfer of drums of thorium residue from a General Atomics warehouse to the FMPC. We insured that the work was done in a safe, hygienic manner with as low radiation exposure as practicable. We also monitored all trailers to see that they conformed to DOT requirements. K. N. Ross provided coverage during the weeks of August 6 and 20, 1979. C. J. Mize provided coverage during the week of August 13, 1979.

CONCLUSIONS:

Radiation exposures to employees were lower than expected and well within DOE limits.

Radiation from the loads in the trailers was high but with proper shielding was kept within DOT limits.

PERSONS VISITED:

Jim Siltanen, General Atomics employee.
Ken Powell, General Atomics employee.
Charles Skvortez, General Atomics employee.

DESCRIPTION OF TRIPS:

Before starting work each day all NLO employees changed to coveralls and company shoes. Each employee was given a pocket dosimeter and a gamma TLD badge. The dosimeters were read each night and the TLD badges worn for a week and read at the end of the operation. Employees also wore the regular NLO film dosimeter. The visitors from

General Atomics wore dosimeters. The radiation dose as shown by dosimeters, TLDs, and film is given in Table 1. All radiation doses were well within the DOE quarterly limits.

Airdust samples were taken during the movement of drums into the trucks and while sweeping the floor after all drums were loaded. Results of these samples were low, ranging from 7 to 33 alpha d/m/m³. Respirators were worn during all sweeping.

Much of the first day was spent unloading equipment and setting up to load the trucks. The floor was covered with "Duststop" and swept before any loading was started. The sand drum shielding was moved out of the doorway to allow better access.

The first drums were loaded into the first truck without any shielding in front. The radiation in the cab of the truck was over 5 mR. These drums were then moved back about 6 inches and sandbags were dumped between them and the front wall of the truck. This reduced the gamma radiation in the cab of the truck to less than 2 mR/hr. It was found later that the sand bags slumped and different tractors had the driver closer to the load so that radiation in the cab was greater than 2 mR/hr when the trailers arrived at NLO. To improve the shielding for the cab we loaded two drums of sand in the center front of the trailer. Two empty drums were then loaded between the outside walls of the trailer and the sand drums. This left a space of 8-10 inches in front of the empty drums. This space was filled with sandbags till at least one layer above the drums. This combination of distance and shielding provided satisfactory radiation levels in the tractor cab and was used during the rest of the operation. Drums of trash, floor sweepings, etc. were substituted for empty drums when they were available.

The warehouse floor was swept when it appeared too dusty. Respirators and Duststop were used during the sweeping.

After all drums were loaded into trucks, the interior of the warehouse was again swept. A survey of the entire warehouse showed some spots with high (5-20 mR/hr) gamma measurements. These spots were leaks from some of the drums and were visible as brown stains on the concrete. An alpha survey showed very little contamination except in these same spots.

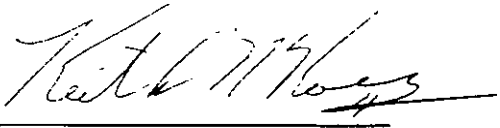
The non-NLO equipment used in this operation, the car and the ramp were cleaned using the portable vacuum and rags. Both items were found to be free of contamination after cleaning.

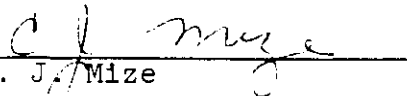
MISCELLANEOUS COMMENTS:

Co-operation between all concerned with this project was very good.

COMMITMENTS:

None.


K. N. Ross


C. J. Mize

KNR:CJM/vvs

attach.

cc: S. F. Audia
M. W. Boback
J. W. DeDapper

Central Files

Table 1. Radiation Doses⁽¹⁾

Employee ⁽²⁾	Exposure Days	Dosimeter mR Gamma	TLD, mR Gamma	Film, mrems	
				Gamma	Beta + Gamma
NLO-1	5	140	139	142	310
NLO-2	5	139	118	153	298
NLO-3	5	156	150	119	287
NLO-4	5	89	92	96	199
NLO-5	5	66	93	52	125
NLO-6	5	69	119	42	105
NLO-7	5	116	134	153	321
NLO-8	5	38	5	27	74
NLO-9	5	117	114	119	254
NLO-10	5	122	131	74	157
NLO-11	9	95	104	58	115
NLO-12	9	88	78	52	125
GA-1	(3)	71			
GA-2	(3)	40			
GA-3	(3)	75			

(1) DOE quarterly limit: Gamma, 3000 mrems; Beta plus gamma, 5000.

(2) NLO: National Lead Co. of Ohio employees.
GA: General Atomics employees.

(3) General Atomics personnel observed at various times throughout the three-week operation. They were given only pocket dosimeters to wear while in the warehouse area.